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# A NOTE ON THE ECOLOGY OF HERONS

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The interrelations of living things are likely to remain for a long time the least understood of ecological problems. Their study often defies efforts at exactness or completeness, and "laboratory methods" are usually helpless. Yet these complex relations are far reaching and often of decisive importance. Darwin's famous and frequently quoted example of the effect of cats on the clover crop would seem to show that chains of cause and effect have rarely been recorded, and also that their importance is recognized.

A series of interrelations of this kind—from man to herons—recently came under my observation. The upper part of Belfast Lough in the North of Ireland is occupied by "the banks," an area of perhaps ten square miles, bare at low water but covered at high tide. This ground used to be very soft with shallow pools and anastomosing streams spreading over the dark oozy ground. At low water it was the feeding place of many birds. Curlews, sandpipers, redshanks, gulls, rooks and others were common; but by far the most conspicuous were the big herons (*Ardea cinerea*—closely allied to our *A. herodias*). These herons were always to be seen in some numbers, often very close to the railroad trains that passed their feeding grounds and to which they had become accustomed. Such was the condition thirty years ago.

Within recent years I have several times revisited this ground. Many birds are still there, some in undiminished numbers, but the herons are practically absent. On inquiry the following explanation was given to me and is borne out by my own observations. The only channel through the banks to the port of Belfast used to be through the shallow and meandering river Lagan. The city cut a straight and deep channel, about six miles long, from the port to deep water. Following this, in the course of a few years, the soft mud of the banks was replaced or covered by a firm sand, presumably due to a more direct tidal flow. As a consequence, great stretches of eelgrass (*Zostera marina*) disappeared, and with it the sand-eels and small fish which found shelter in it. The herons, thus deprived of their food, forsook their old haunts for the neighboring bays and loughs.

Thus the chain runs from man through the cutting of the channel, the extensive edaphic change, the eel-grass, the sand-eels to the herons.